

MICHIGAN BUILDING RESILIENCE AGAINST CLIMATE HEALTH EFFECTS:

COLLABORATION OF THE
GREAT LAKES SCIENCES + ASSESSMENT CENTER (GLISA) &
MICHIGAN CLIMATE & HEALTH PROGRAM (MICHAP)

Lorri Cameron, MPH, PhD
Division of Environmental Health,
Michigan Dept. Community Health MDCH
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MICHIGAN STATE
UNIVERSITY

GLISA  M UNIVERSITY OF MICHIGAN
GREAT LAKES INTEGRATED SCIENCES + ASSESSMENTS



Areas of Collaboration

- Develop climate models for Michigan Climate & Health Profile Report (CHPR)
- Support regional & local adaptation efforts
- Challenges



CHPR Approach

1. Link key health impacts to climate variables
2. Describe historic climate trends
3. Synthesize future climate projections
4. Predict likely future health trends related to climate projections
5. Note regional differences

Key Climate/Health Relationships

Key Health Outcome	Biophysical Parameter	Climate Factors
Respiratory Diseases	Air Pollutants; Pollen; Mold	Warm temperature; humidity; extreme ppt.
Heat Morbidity, Mortality	Heat Stress	Warm temperature; humidity;
Injury, CO Poisoning	Power Outages; Storms & Cleanup; Ice; Cold	Extreme events; winter ppt as rain
Waterborne Diseases, Toxins	Algal blooms; Flooding; Ecosystem Changes	Warm temperature; extreme ppt; high humidity
Vectorborne Diseases	Mosquitoes, Ticks	Warm winter/spring; humid spring/fall, hot, dry summer.

GLISA Contribution to CHPR

- Describe historic climate trends & important climate drivers for state, subregions
- Synthesize future projections from national & Midwest technical climate reports along w MI-specific analyses: *Great Lakes Ensemble*
- Projections for entire state, w. regional differences noted; limited downscaling
- Higher spatial resolution does not improve model uncertainty

Where is adaptation happening?

- state
- 8 emergency prep regions
- 12 tribal governments
- 45 local health depts
- 83 counties
- 276 cities, 257 villages & 1240 townships
- Multiple regional

NOAA's Ten Climate Divisions



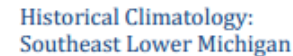
What information do communities need for climate health adaptation?

- Local climate-related health threats (eg, Lyme disease, asthma prevalence)
- Local population and biophysical vulnerability (eg low SES, areas in flood plain)
- Current climate & trends, local to regional
- As most planning is on short (< 20 yr) time scale, model projections less important

Scaling Climate Information

- Historic daily temperature and precipitation data available for observation stations
 - What about other locales in the state?
- Some data can be smoothed to create monthly estimates for MI's 10 Climate Divisions
- *GLISA Climate Division Reports* give seasonal trends 1940-2000 for ave. temperature and total precipitation, along w. typical climate & drivers

Michigan's Local Health Departments

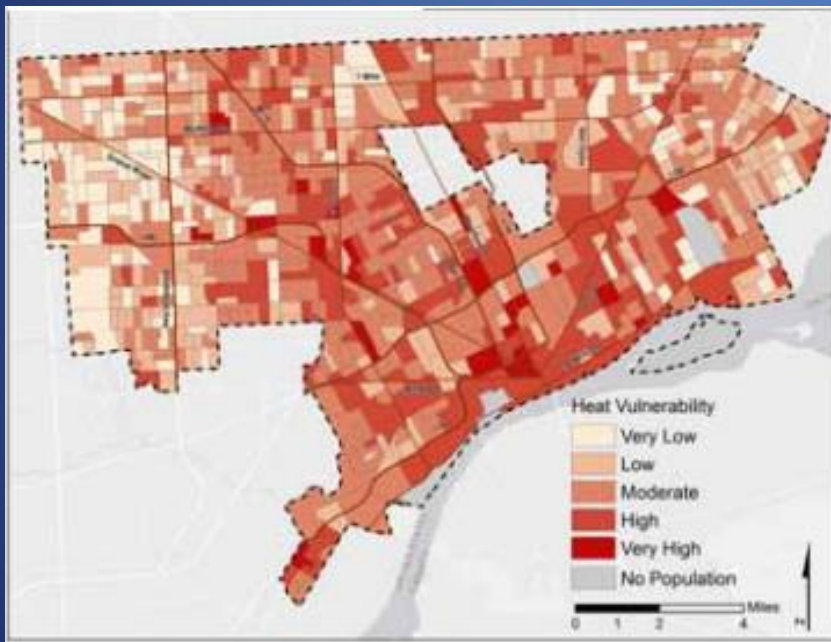


Provided in collaboration with the Michigan Office of the State Climatologist and the Midwest Regional Climate Center

Observed Climate Data, Trends + Detailed Vulnerability Assessment

University of Michigan Taubman College of Architecture and Urban Planning
& Detroit Climate Action Collaborative (DCAC)

Heat



Flooding

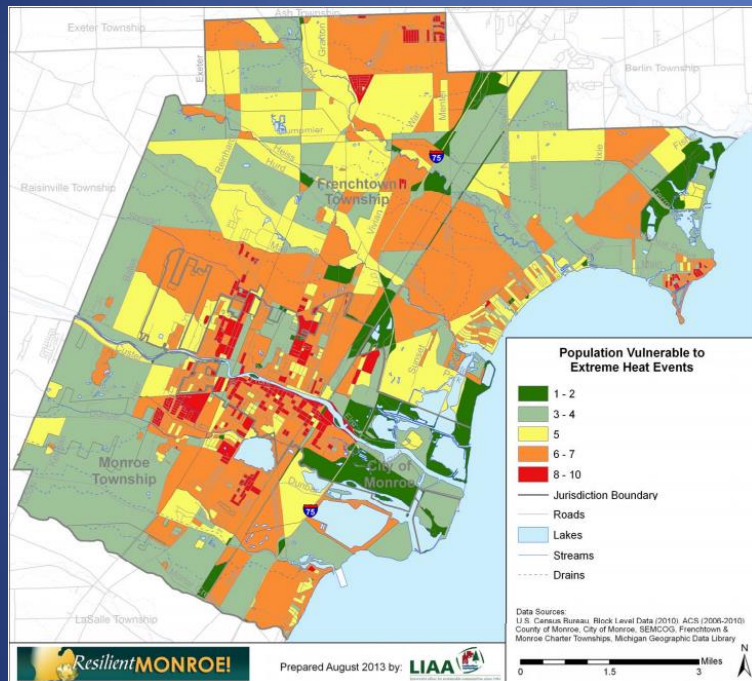


Detroit Climate Action Planning Framework

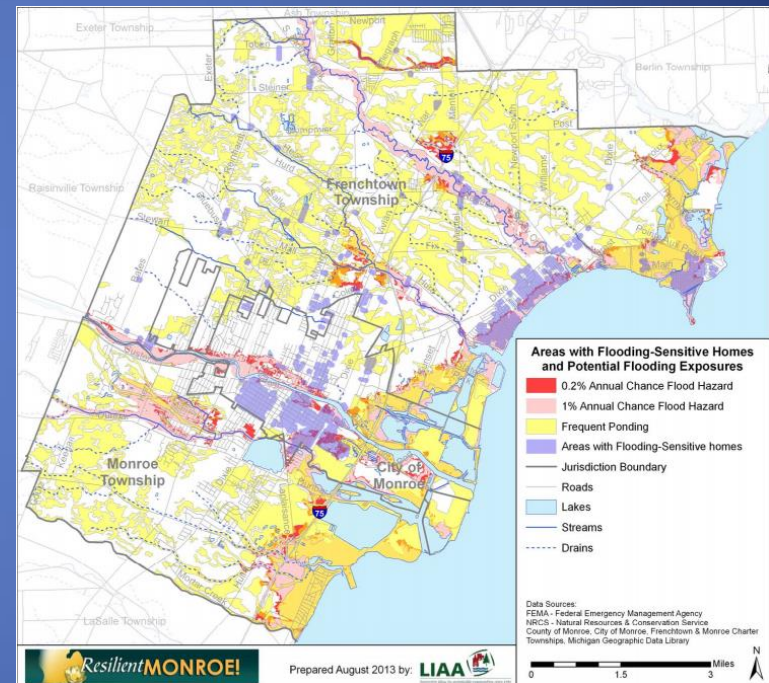
Regional Climate Data, Trends + Detailed Vulnerability Assessment

Land Information Access Association (LIAA)

Heat



Flooding



Resilient Communities Program

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